Amendments to the Specification:

Please replace the two paragraphs beginning at page 5, line 3 with the following amended paragraph:

The intersubband system shown in Figure 1 promotes the electrons between subbands -- here from one subband 101 to another subband 106. Intersubband transitions operate between confined energy states, i.e., quantum wells associated with either the conduction band 132 or valence band 130 in the quantum well. The promotion is effective at holes [[100]] in the quantum well.

Different kinds of intersubband transitions exist. A bound-to-bound transition is formed when both the ground state 104, and the excited state 106 of the excited electrons are bound within a quantum well [[100]].

Please replace the paragraph beginning at page 5, line 3 with the following amended paragraph:

However, since the excited bound level is within the quantum well, the photoexcited electrons escape from the well by quantum mechanical tunneling shown as 230. The resistance against particle tunneling is inversely and exponentially proportional to the distance through which a particle needs to tunnel. The number of particles which will tunnel through a barrier is inversely exponentially proportional to the thickness of that barrier. Most particles will easily tunnel through a barrier that is less than 50Å in thickness. However, only some particles will tunnel through a barrier between 50 and 100Å, and any barrier greater than 100Å in thickness presents a formidable challenge for tunneling. ~~The tunneling for a bound to bound transition has typically more than 100 Å, and hence many~~ Many of the electrons do not tunnel in this way. Therefore, while the

dark current in the bound-to-bound photodetectors is low, the photocurrent has also been low because of the tunneling.